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Test 1385: Hesston 480-8 and 480-8 DT Fiat Diesel 8 and 12-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1385 — HESSTON 480-8 DT FIAT DIESEL
ALSO HESSTON 480-8 FIAT DIESEL
12 SPEED — ALSO 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—650 rpm)								
42.58 (31.75)	2600	2.720 (10.296)	0.447 (0.272)	15.65 (3.084)	170 (76.7)	66 (18.8)	75 (23.9)	28.900 (97.591)
Standard Power take-off Speed (540 rpm)—One Hour								
40.36 (30.10)	2160	2.384 (9.024)	0.414 (0.252)	16.93 (3.336)	170 (76.4)	66 (18.8)	75 (23.9)	28.795 (97.236)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
37.71 (28.12)	2708	2.524 (9.554)	0.469 (0.285)	14.94 (2.943)	169 (75.8)	66 (18.6)	76 (24.2)	....
0.00 (0.00)	2798	0.934 (3.536)	....	....	164 (73.3)	66 (18.9)	76 (24.2)	....
19.21 (14.32)	2758	1.693 (6.409)	0.617 (0.375)	11.35 (2.234)	168 (75.6)	66 (18.9)	76 (24.4)	....
42.73 (31.86)	2600	2.717 (10.285)	0.445 (0.271)	15.73 (3.098)	172 (77.8)	67 (19.4)	77 (25.0)	....
9.70 (7.23)	2782	1.277 (4.834)	0.922 (0.561)	7.59 (1.496)	165 (73.9)	67 (19.2)	77 (24.7)	....
28.48 (21.24)	2728	2.087 (7.900)	0.513 (0.312)	13.65 (2.689)	169 (76.1)	67 (19.4)	77 (24.7)	....
Av 22.97	**2729**	**1.872**	**0.571**	**12.27**	**168**	**66**	**76**	**28.823**
Av (17.13)		*(7.086)*	*(0.347)*	*(2.417)*	*(75.4)*	*(19.1)*	*(24.6)*	*(97.332)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (H1) Gear											
35.98 (26.83)	2662 (11.84)	5.07 (8.16)	2599	6.29	2.696 (10.206)	0.525 (0.319)	13.34 (2.628)	178 (81.1)	57 (13.9)	65 (18.3)	28.855 (97.440)
75% of Pull at Maximum Power—Ten Hours 9th (H1) Gear											
29.52 (22.01)	2062 (9.17)	5.37 (8.64)	2703	4.55	2.353 (8.908)	0.558 (0.340)	12.54 (2.470)	178 (81.1)	60 (15.7)	73 (22.9)	28.780 (97.186)
50% of Pull at Maximum Power—Two Hours 9th (H1) Gear											
20.14 (15.02)	1374 (6.11)	5.50 (8.85)	2742	3.65	1.893 (7.164)	0.658 (0.400)	10.64 (2.096)	176 (80.0)	54 (11.9)	64 (17.5)	28.975 (97.844)
50% of Pull at Reduced Engine Speed—Two Hours 10th (H2) Gear											
20.34 (15.17)	1386 (6.17)	5.50 (8.86)	1821	3.38	1.482 (5.610)	0.510 (0.310)	13.73 (2.704)	175 (79.2)	56 (13.1)	69 (20.6)	28.975 (97.844)
MAXIMUM POWER IN SELECTED GEARS											
28.22 (21.05)	5265 (23.42)	2.01 (3.24)	2718	14.93	6th (L2) Gear			175 (79.2)	47 (8.3)	53 (11.7)	28.950 (97.760)
35.22 (26.26)	4528 (20.14)	2.92 (4.69)	2600	12.01	7th (L3) Gear			179 (81.7)	54 (12.2)	59 (15.0)	28.880 (97.520)
36.07 (26.90)	3444 (15.32)	3.93 (6.32)	2600	8.22	8th (L4) Gear			178 (81.1)	54 (12.2)	58 (14.4)	28.870 (97.490)
37.07 (27.65)	2740 (12.19)	5.07 (8.17)	2599	6.15	9th (H1) Gear			178 (81.1)	53 (11.7)	57 (13.9)	28.870 (97.490)
36.15 (26.95)	1736 (7.72)	7.81 (12.57)	2598	3.98	10th (H2) Gear			178 (80.8)	54 (12.2)	60 (15.6)	28.860 (97.460)

LUGGING ABILITY IN 9th (H1) GEAR

Crankshaft Speed rpm	2599	2345	2078	1816	1560	1294
Pull—lbs (kN)	2740 (12.19)	3023 (13.45)	3182 (14.15)	3315 (14.75)	3375 (15.01)	3340 (14.86)
Increase in Pull %	0	10	16	21	23	22
Power—Hp (kW)	37.07 (27.65)	36.55 (27.26)	33.93 (25.30)	30.81 (22.98)	26.88 (20.04)	22.09 (16.47)
Speed—Mph (km/h)	5.07 (8.17)	4.53 (7.30)	4.00 (6.44)	3.49 (5.61)	2.99 (4.81)	2.48 (3.99)
Slip %	6.15	7.00	7.45	7.78	8.00	7.89

Department of Agricultural Engineering

Dates of Test: April 21-May 1, 1981

Manufacturer: FIAT TRATTORI S.p.A., Via Pico della Mirandola, 72-41100, Modena, Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.3 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8408 **Fuel weight** 7.001 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** SB/SE-CA/CD **To motor** 1.888 gal *(7.146 l)* **Drained from motor** 1.465 gal *(5.546 l)* **Transmission lubricant** SAE 15W-40 **Final drive lubricant** API 303 **Total time engine was operated** 39.5 hours

ENGINE Make U.T.B. Diesel **Type** three cylinder vertical **Serial No.** 8035.02309*002759* **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 3.937″ × 4.33″ *(100 mm × 110 mm)* **Compression ratio** 17 to 1 **Displacement** 158 cu in *(2592 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** oil bath with centrifugal precleaner **Oil filter** one full flow paper cartridge **Fuel filter** two paper elements **Muffler** horizontal **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** 480/8DT*973359* **Tread width** rear 51.2″ *(1300 mm)* to 74.8″ *(1900 mm)* front 55.1″ *(1400 mm)* to 59.1″ *(1500 mm)* **Wheel base** 78.7″ *(2000 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 32.2″ *(818 mm)* Vertical distance above roadway 31.3″ *(794 mm)* Horizontal distance from center of rear wheel tread 0″ *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.5 *(0.8)* second 0.7 *(1.1)* third 1.0 *(1.7)* fourth 1.3 *(2.2)* fifth 1.5 *(2.4)* sixth 2.2 *(3.5)* seventh 3.2 *(5.2)* eighth 4.2 *(6.7)* ninth 5.2 *(8.4)* tenth 7.9 *(12.7)* eleventh 11.6 *(18.6)* twelfth 14.9 *(24.0)* reverse 0.7 *(1.1)*, 2.1 *(3.4)*, 7.5 *(12.1)* **Clutch** single dry disc operated by foot pedal **Brakes** drum and shoe operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 168″ *(4.27 m)* left 168″ *(4.27 m)* (on concrete surface without brake) right 182″ *(4.62 m)* left 184″ *(4.67 m)* **Turning space diameter** (on concrete surface with brake applied) right 343″ *(8.72 m)* left 344″ *(8.74 m)* (on concrete surface without brake) right 372″ *(9.44 m)* left 376″ *(9.54 m)* **Power take-off** 540 rpm at 2160 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 141°F *(60.7°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	98.5	98.0
75% of Pull at Maximum Power—Ten Hours		96.5
50% of Pull at Maximum Power—Two Hours		96.0
50% of Pull at Reduced Engine Speed—Two Hours		92.0
Bystander in 12th (H4) gear		86.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F *(°C)* Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 9th (H1) Gear											
36.33 *(27.09)*	2613 *(11.62)*	5.21 *(8.39)*	2599	4.29	2.732 *(10.341)*	0.526 *(0.320)*	13.30 *(2.620)*	179 *(81.7)*	60 *(15.6)*	71 *(21.7)*	28.820 *(97.320)*
MAXIMUM POWER IN SELECTED GEARS											
33.60 *(25.06)*	6308 *(28.06)*	2.00 *(3.22)*	2677	14.80	6th (L2) Gear			177 *(80.3)*	51 *(10.6)*	58 *(14.4)*	28.960 *(97.790)*
37.53 *(27.99)*	2698 *(12.00)*	5.22 *(8.39)*	2601	4.32	9th (H1) Gear			178 *(80.8)*	54 *(12.2)*	59 *(15.0)*	28.880 *(97.520)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 14.9-28; 6; 16 *(110)*	Two 14.9-28; 6; 16 *(110)*
Ballast	—Liquid (each)	442 lb *(201 kg)*	None
	—Cast Iron (each)	600 lb *(272 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 8.3-24; 8; 22 *(150)*	Two 8.3-24; 8; 22 *(150)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	200 lb *(91 kg)*	None
Height of drawbar		18.5 in *(470 mm)*	18.5 in *(470 mm)*
Static Weight with Operator—Rear		5230 lb *(2372 kg)*	3145 lb *(1426 kg)*
Front		2575 lb *(1168 kg)*	2175 lb *(987 kg)*
Total		7805 lb *(3540 kg)*	5320 lb *(2413 kg)*

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1385.**

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Hesston 480-8 DT Fiat Diesel

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